

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF DELAWARE

IN THE MATTER OF THE APPLICATION)	
OF DELMARVA POWER & LIGHT COMPANY,)	
EXELON CORORPATION, PEPCO HOLDINGS)	PSC DOCKET NO. 14-193
INC., PURPLE ACQUISITION CORPORATION,)	
EXELON ENERGY DELIVERY COMPANY, LLC)	
AND SPECIAL PURPOSE ENTITY, LLC)	
FOR APPROVALS UNDER THE PROVISIONS)	
OF 26 <i>Del. C.</i> §§ 215 AND 1016)	
(FILED JUNE 18, 2014))	

**Jeremy Firestone’s Pre-Hearing Submission in Support of Proposed Allocation of MFN
Benefits**

September 12, 2016

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A. A Short Summary of Differences

1. In exchange for agreeing to forego an appeal of the initial settlement, among other changes I won to the initial settlement, was a change to paragraph 104, which now provides that in event there are increased benefits as result of the most favored nation’s (MFN) provision, the Commission, would allocate any such benefits “consistent with the public interest” after hearing from the parties. As a result of the MFN there are \$27.1 million to be allocated, along with other benefits.
2. The parties made their initial recommendations on allocation on August 12, 2016. After discussions, differences were narrowed and final recommendations formulated which are

embodied in a document entitled “Comparison of Most Favored Benefit Recommendations,” which was submitted by the Joint Applicants as a demonstrative exhibit on September 8, 2016.

3. There is general agreement among the parties on how \$9.1 million of the \$27.1 million should be allocated; that leaves the other \$18 million. I recommend that money be dedicated to low-income gas and electric customers (\$10 million); energy efficiency (\$4 million); public interest wind and solar research (\$3.5 million) and electric vehicle charging stations (\$0.5 million).

4. Some of the positions of the other parties that one would not have anticipated given their statutory mandates and prior advocacy include:

- a. The Department of Natural Resources and Environmental Control (DNREC) not supporting money going to electric vehicle charging stations;
- b. DNREC supporting \$6 million going to non-party, the Delaware Economic Development Office (DEDO) to support natural gas infrastructure.
- c. The Delaware Division of the Public Advocate (DPA) not supporting my proposal to provide rebates to low income customers but instead supporting an \$8 million to subsidize the largest corporations in this state to institute energy efficiency measures and allocating other money to DEDO (DNREC, as noted above, and Public Service Commission Staff (Staff), also support diversion of funds to DEDO).
- d. DPA supporting a second year of funding of an existing core DNREC energy efficiency program (which I join); A second year of funding which DNREC does not support.

The unusual positions being advocated by DNREC and DPA,¹ paired with Staff's decision to join them in their support of \$6 million being diverted to non-party DEDO for job development, creates a three-state agency coalition seeking to advance an out-of-bounds prerogative—that being DEDO. This advocacy should be summarily rejected by the Commission.

B. Standard of Review

5. The Commission's findings are required to be supported by sufficient evidence, free of error of law, satisfy due process of law, and not be arbitrary or capricious. Constellation V. Public Service Commission, 825 A. 2d 872 (Del: Superior Court 2003).

C. Public Interest: Governing Law

6. **Public v. Private Interest and Costs of Achieve Merger and Costs to Achieve Savings:** The US Supreme Court has noted that there is a difference between the “public interest” and private, commercial interests. *FPC v. Sierra Pacific Power Co.*, 350 US 348 (1956).

7. As noted by the Delaware Supreme Court in Public Water Supply Co. v. DiPasquale, 735 A. 2d 378 (Del. Supreme Court 1999), the public interest is determined by reference to the interests the Commission is “designed to protect.” Those interests include “lowest reasonable costs,” environmental benefits to the citizens of this State (such as renewable resources like wind and solar power); fuel diversity, price stability, green power, grid-integrated electric vehicles, energy efficiency, renewable energy prioritization, weatherization assistance, renewable portfolio standards (RPS), environmental benefits and external costs, including health externalities. See 26 Del. Code §§ 351-364, 1007(c)(1)b, 1012(b), 1014(g-h), 1020 and IRP Rules, Title 26, 3010.

¹ As I develop below, these positions that are without support in the administrative record.

² Ex. S-1, Confidential Direct Testimony of Connie S. McDowell, 8:9-14.

8. The Constellation v. Public Service Commission, supra endorsed this broad conception of the “public interest.” In that case, the court was reviewing a merger settlement that in pertinent part provided that Delmarva Power would contribute money toward the promotion of renewable energy and participate in a working group whose charge was to identify and develop demand side management and conservation programs. The Constellation Court considered the question of these and other benefits and their contribution to the public interest to be so beyond reproach that it stated that it “need not belabor them here.”

9. In the present docket, the PSC Staff explained its understanding of “public interest” as requiring the advancement of the general welfare or well-being:

According to the Random House Dictionary, “public interest” is defined as the welfare or well-being of the general public and according to BusinessDictionary.com, public interest is the welfare of the general public (in contrast to the selfish interest of a person, group, or firm) in which the whole society has a stake and which warrants recognition, promotion and protection by the government and its agencies.²

D. Jeremy Firestone’s Proposed Allocation of MFN Benefits is supported by Sufficient Evidence in the Record and is in the Public Interest

10. Turning to the portion of the MFN benefits that were monetized (\$27.1 million), in their respective proposed allocations, the parties agree to certain allocations and disagree as to others. In brief, the parties generally agree³ that:

- a. An additional \$2 million dollars should be allocated for energy efficiency to low income Delmarva customers (\$2 million also was dedicated in the initial settlement bringing the total to \$4 million);
- b. At least \$4 million dollars should be allocated to the General Assembly-created Energy Efficiency Investment Fund (EEIF) program to support energy efficiency

² Ex. S-1, Confidential Direct Testimony of Connie S. McDowell, 8:9-14.

³ There is also agreement on other aspects such as renewable investment, 5MW of renewable energy generation (with some nuanced differences), microgrids, and wording changes. There are additional wording changes that would be useful, including in paragraph 9, which provides for natural gas on land-based wind studies but provides no dates by which such studies ought to be completed.

measures of Delmarva customers (both DPA and I support additional EEIF funds).

Thirty percent would be reserved for minorities, women, veterans, service disabled veterans, and individuals with disabilities for first three years. Importantly, the EEIF program was created by the General Assembly; and

- c. \$3.1 million should be allocated for arrearage management.

The Commission is free of course to disregard the areas of agreement and allocate the funds in any way it sees fit consistent with the public interest. Rather than focus, however, on these areas of agreement, this submission will focus on the other \$18 million, where the parties disagree.

11. I propose that those funds be allocated as follows:

- a. \$10 million to low income gas and electric customers with 70% of those benefits going to those in the lowest quintile; 30% to those in the second lowest quintile;
- b. An additional \$4 million to the EEIF;
- c. \$4 million to the “public interest” projects, with \$0.5 million going to paired electric vehicle charging stations to be deployed throughout the State; and \$3.5 million to be allocated to wind and solar academic research at Del Tech, Delaware State University (DSU), and the University of Delaware (UD), with a cap on overhead and a requirement of providing matching funds of at least 20 percent.

12. Importantly, each of these three proposals that I advocate finds support in the administrative record.⁴ This is in contrast to the proposals of the other parties, which find none, and are best considered lawyers’ proposals. Given the lack of any support in the administrative record for those proposals (not to mention the negative evidence in the record), it would be unlawful for this Commission to adopt those other proposals as its own.

⁴ I primarily rely on Ex. JF24, Firestone Second Supplemental Testimony, which is attached hereto for the convenience of the Commission, and which provides expert testimony on this and other issues discussed herein in added detail.

13. First, I advocate establishing a low-income rebate program. Relying on an analysis by the Congressional Budget Office (CBO), I noted in my expert testimony, that those with low income pay a higher percentage of their income toward energy than the others,⁵ which raises an important equity issue. Ex. JF24, Firestone Second Supplemental Testimony, p. 5. While this Commission rightfully supports measures such the RPS, it is important to recognize that it has regressive effects. As noted, “addressing energy inequity generally, and of RGGI and RPS program is not ‘welfare’ but rather, simple fairness.” Id. Although implementing such a targeted fund might pose some difficulties for the Commission and for Exelon on its own, we can again turn to the CBO for answers, as it has analyzed various means to disburse funds including tax and payroll rebates, the earned income tax credit, and the Low Income Household Energy Assistance Program (LIHEAP). Thus, as Dr. Firestone testified, “any such fund could be conditioned on the establishment of such a program either administratively or legislatively by a date certain (say five years from a final order) after which the funds could be re-distributed.” Id. at 6.

14. As well, earlier I testified that economic theory (and the analysis by the Joint Applicants’ expert, Dr. Susan Tierney⁶) supports the proposition that the “economic benefits that arise from limiting the rebate to lower-income ratepayers are greater than those associated with a general rebate. This occurs because lower income ratepayers are much more likely to spend their rebate than are high-income ratepayers, and such spending has indirect economic benefits.” Ex. JF15,

⁵ Congressional Budget Office (CBO) by Terry Dinan, Offsetting a Carbon Tax’s Costs on Low Income Households (2012), available at https://www.cbo.gov/sites/default/files/112th-congress-2011-2012/workingpaper/11-13LowIncomeOptions_0.pdf; Congressional Budget Office (CBO) by Terry Dinan, Trade-offs in Allocating Allowances for CO₂ Emissions, Economic and Budget Issue Brief, (April 25, 2007), available at https://www.cbo.gov/sites/default/files/110th-congress-2007-2008/reports/04-25-cap_trade.pdf.

⁶ JA-7, Pre-Filed Direct Testimony of Dr. Susan F. Tierney, Table SFT-5, p. 35.

Firestone, Supplemental Testimony, March 6, 2015, p. 7. Thus, such a program has general benefits for Delaware.

15. Given the above, there can be little dispute that the establishment of such a low-income rebate program would be in the public interest.

16. I also propose a narrowly-tailored \$4 million public interest fund to provide greater assurance that it will deliver as promised. First, the fund I propose focuses on only two neatly-tailored objectives—(a) deployment of a paired electric vehicle charging stations located strategically across the state of Delaware; and (b) wind and solar research and training, which can be supported by a well-bounded request for proposals (RFP) evaluation process that ensures that the lion-share of the money goes toward research and training rather than proposal evaluation.⁷ Second, research and training grants are limited to state institutions—Del Tech, DSU, and UD.

17. As I testified (Ex. JF24, Firestone Second Supplemental Testimony, pp. 6-7), the narrow proposed “focus advances state institutions to which ratepayers’ taxes are dedicated and examines the [sic] primary means of generating renewable electricity in our regional grid and does so in the limited areas of research and training.” Indeed, “newer wind turbine technology presents opportunity to extract economically viable wind resources from southern Delaware, providing Delaware with diverse fueled, price stable, and emissions-free generation that would also have the effect of suppressing prices more generally” and benefiting southern Delaware through private rents and/or royalties, economic development, taxes, and family farm maintenance. *Id.* at 9. As such, further “research into this promising technology, including spatial planning, regulatory, social and environmental considerations would be beneficial.” *Id.*

⁷ If the Commission adopts this proposal I will attempt to find individuals at the University of Delaware to oversee the RFP in an effort again to minimize costs.

18. Third, dedicating these settlement proceeds as proposed will effectively enlarge the \$35 million in funds by a minimum of 20% through an explicit requirement that recipients provide at least 20% matching funds. This will add a minimum of \$700,000, and should result in fewer and more considered proposals, reducing administrative costs as well. Fourth, my proposals caps overhead costs at 38%, which is consistent with the rate the University of Delaware employs on state grants (compared to 56% on federal grants), thus ensuring that more money will go to direct costs of research.

19. The paired electric vehicle charging station proposal—deployment plus five years free charging—builds on an existing DNREC-UD partnership helping to ensure that monies will be spent in the field. As I noted in my expert testimony, Delaware is presently faced with a “Catch-22,” where large numbers of individuals are reluctant to purchase an electric vehicle until a robust network of charging stations is established given range anxiety and concerns over charging infrastructure,⁸ while those that have private capital to otherwise invest in charging infrastructure are reluctant to invest until a critical mass of electric vehicles exists on the road. Id. at 7-8. Electric vehicle charging stations thus “present an example of the type of good that is best provided by government/public funds. Once a market for electric vehicles is established, it will be appropriate to transition to privatize charging.” Id. at 8.

20. Finally, DPA and I propose that the EEIF be funded at \$8 million rather than at \$4 million, as proposed by DNREC and Staff propose. DNREC’s decision to not support our

⁸ See e.g., Franke, T, et al., 2012. Adapting to the Range of an Electric Vehicle – The Relation of Experience to Subjectively Available Mobility Resources, https://www.researchgate.net/profile/Thomas_Franke/publication/257401389_Adapting_to_the_range_of_an_electric_vehicle_The_relation_of_experience_to_subjectively_available_mobility_resources/links/00b4952530c399ee58000000.pdf?origin=publication_detail; Daziano, R. 2013. Conditional-logit Bayes Estimators for Consumer Valuation of Electric Vehicle Driving Range, Resource and Energy Economics, 35(3): 429-450, available at https://www.researchgate.net/profile/Ricardo_Daziano/publication/261171639_Conditional-logit_Bayes_estimators_for_consumer_valuation_of_electric_vehicle_driving_range/links/545140d40cf2bf864cba8f34.pdf

proposal cannot be based on a conclusion that these funds would not be valuable. Indeed, when the General Assembly designed the fund in 2011, the intent was to capitalize it at about \$5 million per year.⁹ Thus, in essence DPA and I propose roughly two years of EEIF funding rather than one. We do so using an established funding mechanism and program that would not require DNREC to design it; rather the funds could be used now by recipients to advance energy efficiency.

E. The Alternative Proposed Allocations Find Negative Support in the Administrative Record and are not in the Public Interest

21. First, Staff, DPA, and DNREC propose to create a brand new program funded to the tune of \$8 million dollars to subsidize our state's largest commercial and industrial companies—who can easily pay their own way—in their adoption of energy efficiency measures. They provide no support in the record for the notion that Fortune 50 companies (e.g., JP Morgan Chase, Bank of America and Dow-Dupont) will only adopt energy efficiency measures if they receive large public subsidies. As I opined, given that these are sophisticated, profit-maximizing companies with deep pockets that allow them to make the initial capital outlay and with research documenting that the return on investment for energy efficiency measures at existing buildings is typically achieved within 1.1 years, with a benefit-cost ratio of 4.5,¹⁰ these subsidies are unnecessary. This hand-out may “simply provide a financial benefit to the recipients’

⁹ DNREC forced to suspend energy efficiency investment funding (February 19, 2016); <http://www.wgmd.com/dnrec-forced-to-suspend-energy-efficiency-investment-funding/>; See also Delaware Businesses profit from going green (July 11, 2015), <http://www.delawarebusinesstimes.com/delaware-environmentally-friendly-business/>

¹⁰ Evan Mills, Lawrence Berkeley National Lab, Building Commissioning: A Golden Opportunity for Reducing Energy Costs and Greenhouse Gas Emissions (Prepared for the California Energy Commission, Public Interest Energy Research (2009), available at <http://cx.lbl.gov/2009-assessment.html>. See Executive Summary and Table 4, p. 22.

shareholders (ironically resulting in a transfer of wealth from Exelon’s shareholders to say JP Morgan Chase’s shareholders) or alternatively enhanced bonuses to corporate managers.” Firestone Second Supplemental Testimony at 4. Moreover, given the lack of a tight limitation (e.g., \$250,000) on the amount of funds that any one corporation could receive, the funds could simply go to enrich one or two corporations. In sum, this “private interest” fund clearly does not pass muster as being in the public interest.

22. Transferring \$6 million to non-Party DEDO for a jobs program also can hardly be considered to be within the confines of the public interest that this Commission is obligated and honored to uphold. Even if it were within the penumbra of the public interest, it remains a mystery—and there has been no evidence introduced into the record—how a vague proposal to advance jobs in the natural gas infrastructure sector could even be accomplished given DEDO administers very specific grant, loan, training and tax incentive programs. See <http://dedo.delaware.gov/Incentives>. Indeed, in its initial proposal, DPA, rightfully acknowledges as much, conceding that “no such DEDO program” may exist. This is clearly too thin a reed on which to base a substantial allocation of settlement dollars.

23. Further, assuming arguendo a DEDO program did exist into which such a jobs program could be pigeonholed and it would otherwise be in the public interest, DEDO’s champions cannot guarantee that the funds will generate even one additional job because they cannot control what the General Assembly will do. Indeed, one would expect that the General Assembly might take the opportunity to decrease the DEDO’s appropriation by an equivalent amount.

24. Two of the more esteemed “students” of Delaware public administration and policy—William Boyer and Edward Ratledge—comment on DEDO and other Delaware institutions is instructive. They observe that all too often those institutions have “allowed political and/or social

engineering factors to influence their economic and fiduciary judgment,” many times resulting in significant “failures in growing businesses and creating jobs.”¹¹ Indeed, at times, their actions have been downright “poisonous.”¹² Given “global competition and rapid technological change,” they contend that Delaware would be wise to “switch from choosing companies to subsidize to creating a better business climate for all, including startups.”¹³

25. Moreover, even a cursory review of DEDO’s electricity and natural gas sector record should give any policymaker pause. As noted in my Second Supplemental Testimony (at 10), DEDO has, for example, (a) sought to “subsidize costs related to a data center and large natural gas (>250MW) power plant that were proposed to be located in the center of the City of Newark while forward-looking companies such as Google and Apple are building data centers powered with renewable energy; and (b) it subsidized the natural gas-powered Bloom Energy fuel cell project, which transferred substantial costs from Bloom to Delmarva Power ratepayers, much to the chagrin of the DPA, among others, and, it created complications for the Delaware RPS as well.” For all these reasons, this Commission has no choice but to find a better use of \$6 million dollars than the proposed DEDO frolic and detour.

26. Finally, in contrast to the narrowly tailored fund (charging stations and wind/solar academic research and training at state institutions) that I propose, PSC Staff and DNREC propose to dedicate \$4.0 million toward a loosely characterized “public interest” fund (DPA opposes this fund and instead shifts these funds to DEDO). It is not clear what they have in mind this fund would accomplish, given that DNREC and the Sustainable Energy Utility (SEU)

¹¹ William W. Boyer and Edward C. Ratledge, 2016. GROWING BUSINESS IN DELAWARE: THE POLITICS OF JOB CREATION IN A SMALL STATE, p. 207, Rowman & Littlefield: London. Boyer is the Messick Professor Emeritus of Public Administration at the University of Delaware; Ratledge is the Director of the Center for Applied Demography and Survey Research.

¹² Id. at 206.

¹³ Id. at 202, quoting Delaware Associate Professors of Economics Stacie Beck and Eleanor Craig.

already educate, inform and promote renewable energy and energy efficiency in the state, as there is no suggestion in the administrative record.

WHEREFORE, I, JEREMY FIRESTONE, INTERVENOR, RESPECTFULLY REQUEST THAT THIS HONORABLE COMMISSION:

1. Adopt as its own the allocation of MFN benefits that are uncontested and find such proposed allocation as being in the public interest;
2. Find that the other parties' proposed allocations of contested matters are not supported by record evidence;
3. Reject the other parties' proposed allocations of contested matters as they are not in the public interest;
4. Adopt as its own the allocation of contested MFN benefits that I propose and find such proposed allocation as being in the public interest; and
5. Grant such other relief as is appropriate and just.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Jeremy Firestone".

Jeremy Firestone
September 12, 2016

Exhibit JF24

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OF THE STATE OF DELAWARE**

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SECOND SUPPLEMENTAL TESTIMONY OF JEREMY FIRESTONE

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13 OF 26 *Del. C.* §§ 215 AND 1016)
14 (FILED JUNE 18, 2014))

15
16
17 **Second Supplemental Testimony of Jeremy Firestone**
18

19 **August 29, 2016**
20

21 **1. Q. Please state your full name and address.**

22 A. My name is Jeremy Mark Firestone. My home address is 130 Winslow Road,
23 Newark, Delaware 19711.
24

25 **2. Q. Do you also have a business address?**

26 A. Yes, my business address is University of Delaware, 373 Harker ISE Lab,
27 Newark, Delaware 19716.
28

29 **3. Q. What is your position at the University of Delaware (UD)?**

30 A. I am a Professor in the College of Earth, Ocean and Environment, School of
31 Marine Science and Policy. I also am the Director of Center for Carbon-free Power Integration.
32 I teach courses on US Renewable Energy and Climate Law and International Climate Change
33 Policy, among other courses. Most of my research falls within social (perceptions, economic

1 preferences, cost-benefit and cost-effective analysis, and spatial planning) and regulatory
2 dimensions of renewable energy.

3
4 **4. Q. Have you previously submitted written testimony in this case?**

5 A. Yes, I submitted written testimony in this case on December 12, 2014 and March 6, 2015.

6
7 **5. Q. Why are you supplementing your testimony at this time?**

8 A. I am testifying regarding my proposed allocation submitted on August 12,
9 2016, as amended. My proposed allocation, like other parties, evolved somewhat over time
10 given discussions among the parties and attempts to narrow differences.

11
12 **6. Q. Which materials did you review prior to providing supplemental testimony?**

13 Prior to testifying, I primarily reviewed the parties' proposed allocations and a draft of
14 the "Comparison of Most Favored Nations Benefit Recommendations," which includes parties'
15 proposed allocations, as amended. I also reviewed the statutory standards under which the
16 Commission evaluates mergers. Finally, I am familiar with renewable energy policies of the
17 State of Delaware, including the Regional Greenhouse Gas Initiative (RGGI), the Delaware
18 Renewable Portfolio Standards (RPS), and Integrative Resource Planning (IRP).

19
20 **7. Q. Can you tell me where your proposal most differs with others?**

21 A. Yes, I can.

22 (i). First, the Public Service Commission Staff (Staff), the Delaware Public
23 Advocate (DPA), and the Delaware Department of Natural Resources and Environmental

1 Control (DNREC) propose that \$8 million be dedicated to subsidize large commercial
2 and industrial companies' adoption of energy efficiency measures; in contrast, I propose
3 those \$8 million in funds be dedicated to low income households that are Delmarva
4 Power ratepayers. I also propose an additional \$2 million for low-income households,
5 which I will discuss later, bringing the total to \$10 million.

6 (ii). The PSC Staff and DNREC propose that \$4.0 million be dedicated toward a
7 loosely defined endowed fund to advance the public interest (DPA opposes this fund); in
8 contrast, I propose a more narrowly tailored fund of (a) \$0.5 million that would be
9 dedicated to a series of paired electric vehicle charging stations located strategically
10 around the state; and (b) the remaining \$3.5 million that would be dedicated to wind and
11 solar academic research or training programs. These programs would be conditioned on
12 the principle investigator being affiliated with the University of Delaware, Delaware
13 State University or Delaware Tech, that those institutions match a minimum of 20% of
14 the requested funds and that any overhead costs be limited, as they are for other state
15 programs, to 38%, and that any such proposed research or training be shown that it would
16 provide a benefit to Delmarva Power ratepayers.

17 (iii). The PSC Staff and DNREC propose to that \$4 million be dedicated to fund
18 the commercial and industrial Energy-Efficiency Investment Fund ("EEIF"), which
19 would re-establish this program for Delmarva Power customers only, and that an
20 additional \$6 million be allocated to the Delaware Economic Department Office (DEDO)
21 in an attempt to entice companies to bring jobs to Delaware, while DPA and I each
22 propose that \$8 million be dedicated to the EEIF fund. DPA shifts funds from the
23 "public interest" projects to the EEIF while I allocate \$4 million of the \$6 million that

Staff and DNREC would allocate to DEDO to the EEIF, with the remaining \$2 million to low income residential customers (again, as noted, bringing the total allocation to low income households to \$10 million).

8. Q. Can you please elaborate on your opinion regarding the relative merits of dedicating \$8.0 million to low income households rather than to large, commercial and industrial corporations?

A. In her testimony, the Joint Applicants' expert witness, Dr. Susan F. Tierney, noted that with regard to funds generally, the Commission could choose to make them available on "an equal basis to all customers ... or disproportionately in favor of those customers who receive fewer of the other types of benefits likely to flow from the Merger (e.g., to ... low-income residential customers....) (at page 20). Rather than favoring those parties who receive the fewest benefits and who have the least ability to pay, as I do, the PSC staff, DNREC and DPA favor those with the greatest ability to pay their own way. They have not provided any factual support for the proposition that the largest corporations in this state such as JP Morgan Chase, Bank of America and Dow-Dupont would only choose to adopt energy efficiency measures if they were to receive large subsidies. These large subsidies may well simply provide a financial benefit to the recipients' shareholders (ironically resulting in a transfer of wealth from Exelon's shareholders to say JP Morgan Chase's shareholders) or alternatively enhanced bonuses to corporate managers. Indeed, research shows that the median time to achieve a return on investments in energy efficiency at existing buildings is a mere 1.1 years, with a benefit-cost ratio of 4.5.¹ Given that these corporations have deep pockets, unlike small firms, they have

¹ Evan Mills, Lawrence Berkeley National Lab, Building Commissioning: A Golden Opportunity for Reducing Energy Costs and Greenhouse Gas Emissions (Prepared for the California Energy Commission, Public Interest

1 substantial funds on hand to make the needed capital investments, without the benefit of
2 government largess. Rather than encouraging large corporations to rent-seek, the state should
3 encourage its corporate community to join forward-looking corporations that go beyond energy
4 efficiency and undertake voluntary measures such as buying carbon credits—that is, they pay for
5 societal improvements rather than being subsidized by government to undertake private
6 improvements. Those forward-looking firms do so to advance “corporate social responsibility,”
7 demonstrate “climate leadership,” and engage customers and clients, and for branding.²

8 In contrast, those with low income pay a higher percentage of their income toward energy
9 than the others. Indeed, the lowest quintile dedicates more than 11% of their household income
10 to utility expenditures while the highest quintile dedicates less than 2%.³ This raises equity
11 issues. And while I enthusiastically support measures such as RGGI and RPS, I am also
12 cognizant of the fact that these policies are regressive. Addressing energy inequity generally,
13 and of RGGI and RPS program is not “welfare” but rather, simple fairness. The Congressional
14 Budget Office (CBO), for example, has estimated the effects of a potential nationwide carbon
15 cap and trade program on individuals and corporations.⁴ For example, the CBO estimated that
16 a 15 percent reduction in carbon emissions would result in a 3.3% increase in cost as a
17 percentage of income for those households in the lowest quintile while only a 1.7% increase for
18 those in the wealthiest quintile. If, however, revenues from the sale of carbon allowances were

Energy Research (2009), available at <http://cx.lbl.gov/2009-assessment.html>. See Executive Summary and Table 4, p. 22.

² Forest Trends Ecosystem Marketplace, Ahead of the Curve: State of the Voluntary Carbon Markets 2015 Figure 13, p. 20, available at http://forest-trends.org/releases/uploads/SOVCM2015_FullReport.pdf

³ Congressional Budget Office (CBO) by Terry Dinan, Offsetting a Carbon Tax’s Costs on Low Income Households (2012), available at https://www.cbo.gov/sites/default/files/112th-congress-2011-2012/workingpaper/11-13LowIncomeOptions_0.pdf

⁴ See e.g., Congressional Budget Office (CBO) by Terry Dinan, Trade-offs in Allocating Allowances for CO₂ Emissions, Economic and Budget Issue Brief, (April 25, 2007), available at https://www.cbo.gov/sites/default/files/110th-congress-2007-2008/reports/04-25-cap_trade.pdf

1 used to provide lump sum payments, the lowest quintile would see overall benefits of 1.8 %
2 (rather than a 3.3% cost increase). On the other hand, the revenues were used to cut corporate
3 taxes (having a similar effect to the subsidies provided here), the highest quintile would see
4 benefits of 1.6% rather than a 1.7% decrease.

5 While the mechanics of such a targeted fund would need to be worked out and might be
6 difficult for Exelon to do so on its own, the CBO has analyzed various mechanisms such as tax
7 rebates, payroll tax rebates, earned income tax credits, and the Low Income Household Energy
8 Assistance Program (LIHEAP) that could be employed. Thus, any such fund could be
9 conditioned on the establishment of such a program either administratively or legislatively by a
10 date certain (say five years from a final order) after which the funds could be re-distributed.
11 Such a fund would be in the public interest, as compared to subsidizing multinational companies,
12 which is in the private interest.

13
14 **9. Q. Can you explain why you favor a narrowly tailored fund rather than a fund**
15 **that could be used for any project that could be deemed in the “public interest.”**

16 A. To begin with, given that Delaware is a small state that already has two
17 government entities—DNREC and the Sustainable Energy Utility—that provide information and
18 education and that promote renewable energy policies it is not clear that such a broad fund would
19 provide the best use of limited dollars. I prefer a much more narrowly tailored fund so that the
20 money can be allocated efficiently and used effectively to benefit Delmarva Power ratepayers. I
21 would limit any such fund to (i) research and training programs at (ii) one of the three state
22 academic institutions; (ii) to wind and solar. This focus advances state institutions to which
23 ratepayers’ taxes are dedicated and examines that primary means of generating renewable

1 electricity in our regional grid and does so in the limited areas of research and training. In
2 contrast to a broad request for proposals (RFP), which will be complicated and require large and
3 perhaps unwieldy external evaluation teams to evaluate competing grant proposals, a focus on
4 two areas—wind and solar—and two means—research and training—will be present a well-
5 bounded evaluation process. Further, an explicit requirement of matching funds ensures that the
6 recipients have skin in the game and the limitation on overhead ensures that Exelon dollars are
7 primarily going toward research rather than overhead.

8 A further advantage of the more narrowly tailored program is the proposal to dedicate
9 resources toward a specified purpose—paired (two per location) universal (so as not to favor one
10 design of a charging plug over another) electric vehicle charging stations throughout the state. I
11 propose that the funds be used not only for establishing the charging stations but for providing
12 free charging for a period of five years as well. This program would build on a DNREC-
13 University of Delaware partnership that deployed I believe five (unpaired) charging stations in
14 the state with limited free charging (the funds I propose here could also be used to extend the
15 limit period of free charging with the first five).

16 Some individuals may contend that electric vehicle charging stations should be privately
17 financed. They however do so only by ignoring the “Catch-22.” On the one hand, it is well-
18 established that one of the largest impediments to electric vehicle adoption are range anxiety and
19 the related concern over the lack of charging infrastructure.⁵ Indeed, when consumers suffer
20 from driving range anxiety, they are unlikely to consider purchasing an electric car.⁶ One way to

⁵ See e.g., Franke, T, et al., 2012. Adapting to the Range of an Electric Vehicle – The Relation of Experience to Subjectively Available Mobility Resources, https://www.researchgate.net/profile/Thomas_Franke/publication/257401389_Adapting_to_the_range_of_an_electric_vehicle_The_relation_of_experience_to_subjectively_available_mobility_resources/links/00b4952530c399ee58000000.pdf?origin=publication_detail

⁶ Daziano, R. 2013. Conditional-logit Bayes Estimators for Consumer Valuation of Electric Vehicle Driving Range,

1 address consumer concerns is to establish a comprehensive network of public charging stations,
2 which effectively extends the EV batteries.⁷ Unfortunately, without the presence of such a
3 comprehensive network, many individuals are reluctant to invest in electric vehicles. On the
4 other hand, those controlling private capital are hesitant to invest in privately-owned charging
5 stations unless and until there is a critical mass of electric vehicles on the road, which would
6 allow them to recoup their investment. Electric vehicle charging stations thus present an
7 example of the type of good that is best provided by government/public funds. Once a market
8 for electric vehicles is established, it will be appropriate to transition to privatize charging.

9 Others might contend that the benefits of such a program will largely go to middle to
10 upper quintiles because of the larger capital costs required for an electric vehicle. That
11 contention has merit, but ignores the fact that (a) it will lead to more mass production of electric
12 vehicles which will bring down the costs for all; (b) there are diffuse health benefits from
13 removing mobile sources of air pollution from Delaware roads and (c) that this proposal is paired
14 with \$8 million to be dedicated to low income households

15
16 **10. Q. Is land-based wind power feasible in Delaware or must Delaware solely rely**
17 **on offshore wind power?**

18 A. Newer wind turbine technology presents opportunity to have higher wind turbine
19 hub heights where the winds are stronger, and newer composite materials for wind turbine blades

Resource and Energy Economics, 35(3): 429-450, available at
https://www.researchgate.net/profile/Ricardo_Daziano/publication/261171639_Conditional-logit_Bayes_estimators_for_consumer_valuation_of_electric_vehicle_driving_range/links/545140d40cf2bf864cba8f34.pdf

⁷ Saxena, S., et al. 2015, Quantifying EV Battery End-of-life through Analysis of Travel Needs with Vehicle Powertrain Models, Journal of Power Sources, 282: 265-276, 275.

1 result in substantially large swept areas by the wind turbines. Wind maps⁸ suggest that
2 economically viable wind power project might be able to be developed in the southern part of the
3 State. My preliminary work in this area suggests that a levelized cost of energy (LCOE) of
4 around \$83/MWh for a project that is 50% debt financed. This would provide Delaware with
5 diverse fueled, price stable, and emissions-free generation that would also have the effect of
6 suppressing prices more generally. Moreover, any such development, which would be on private
7 property, would most likely be in rural parts of the state, and thus would provide rents and/or
8 royalties to farmers who agree to lease small portions of their land for wind farming, benefiting
9 the downstate economy as well and helping to maintain family farms; it would provide local tax
10 benefits as well. Finally, when looking at the levelized costs of new generation and considering
11 environmental damages, new wind power is substantially cheaper on a per kWh basis.⁹ Further
12 research into this promising technology, including spatial planning, regulatory, social and
13 environmental considerations would be beneficial.

14 **11. Q. Can you explain why you would have the Commission dedicate funds for**
15 **energy efficiency upgrades rather than job growth?**

16 A. Yes. It is my understanding based on past DNREC experience that \$4 million
17 will likely fund the EEIF for only about one year; my proposal would fund it for about two years
18 with all the concomitant energy efficiency benefits. In contrast, sending funds to the non-Party
19 DEDO, albeit with the nominal purpose of bringing jobs first to the natural gas infrastructure
20 sector, and should any money be left over, to the energy efficiency sector, provides little

⁸ See the Delaware map at 100m at <http://usasolarwind.com/USA%20Wind%20Maps/Delaware/Delaware%20wind%20speed%20map%20100m.pdf>; and national maps with hub heights at 110m and 140m are published by the US Department of Energy at http://apps2.eere.energy.gov/wind/windexchange/windmaps/resource_potential.asp.

⁹ D.T. Shindell, The Social Cost of Atmospheric Release, *Climatic Change*, 10.1007/s10584-015-1343-0 (2015)

1 assurance of much of anything. To begin with, it is not clear how this vague proposal would
2 work for natural gas infrastructure given that DEDO has specific grant, loan, training and tax
3 incentive programs and Staff, DPA and DNREC have failed to provide a roadmap to any such
4 program; Indeed, in its initial proposal, DPA, who originated the idea, acknowledges that there
5 may be “no such DEDO program.”

6 As for the back-up energy efficiency program, there is no assurance that energy will be
7 used any more efficiently by Delawareans or Delaware businesses or that any Delawareans and
8 Delaware businesses will be able to obtain energy efficiency contracting services at lower prices.
9 In essence, the energy efficiency component is a jobs program masquerading as an energy
10 efficiency program. And, even if successful, which is in doubt, it may not provide a single
11 additional job to Delaware in that the General Assembly may simply decrease the state funds that
12 it would otherwise allocate to DEDO by an amount equivalent to the funds the parties propose
13 here to provide to DEDO.

14 Further, DEDO’s track record in the electricity and natural gas sectors is far from
15 encouraging. DEDO, for example, (a) sought to subsidize costs related to a data center and large
16 natural gas (>250MW) power plant that were proposed to be located in the center of the City of
17 Newark while forward-looking companies such as Google and Apple are building data centers
18 powered with renewable energy; and (b) it subsidized the natural gas-powered Bloom Energy
19 fuel cell project, which transferred substantial costs from Bloom to Delmarva Power ratepayers,
20 much to the chagrin of the DPA, among others, and, it created complications for the Delaware
21 RPS as well.

22 **12. Q. Does this complete your second supplemental testimony today?**

23 A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF DELAWARE

IN THE MATTER OF THE APPLICATION)	
OF DELMARVA POWER & LIGHT COMPANY,)	
EXELON CORORPATION, PEPCO HOLDINGS)	PSC DOCKET NO. 14-193
INC., PURPLE ACQUISITION CORPORATION,)	
EXELON ENERGY DELIVERY COMPANY, LLC)	
AND SPECIAL PURPOSE ENTITY, LLC)	
FOR APPROVALS UNDER THE PROVISIONS)	
OF 26 <i>Del. C.</i> §§ 215 AND 1016)	
(FILED JUNE 18, 2014))	

CERTIFICATE OF SERVICE

I hereby certify that on September 12, 2016, that on behalf of Jeremy Firestone, *Pro Se*, I filed **Jeremy Firestone's Pre-Hearing Submission in Support of Proposed Allocation of MFN Benefits** with Delafile and served a copy of the same on all persons on the email service list by email attachment.

Respectfully submitted,



Jeremy Firestone
12 September 2016